

STUDIES IN THE EUPATORIEAE (ASTERACEAE). CLXVII.

FOUR NEW SPECIES OF BARTLETTINA.

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Floristic studies of Mexico and Central American Eupatorieae have encountered the four following new species of Bartlettina.

Bartlettina williamsii R.M.King & H.Robinson, sp. nov. Plantae suffrutescentes vel subarborescentes usque ad 2 m altae paucè ramosae. Caules flavo-virides vel rubrescentes distincte hexagonales glabri. Folia opposita, petiolis 5-10 cm longis anguste alatis, alis base latioribus trans nodum continuis; laminae ovato-deltaeidae 9-16 cm longae et 8-15 cm latae base subtruncatae in medio abrupte acuminatae margine distincte unidentatae et multo serratae apice breviter argute acuminatae fere ad basem in acumine valde trinervatae supra vix minute puberulae subtus minute glandulopunctatae in nervis et nervulis sparse minute puberulae. Inflorescentiae terminales late dense corymbosae, ramis puberulis, ramis ultimis 2-10 mm longis. Capitula turbinata ca. 12 mm alta et 5 mm lata; squamae involucri subimbricatae ca. 25 valde inaequales orbiculares vel late oblongae 1.5-7.0 mm longae et 1.5-3.0 mm latae margine late scariosae apice rotundatae extus 4-costatae sparse appresse puberulae vel subglabrae; receptacula glabra. Flores 20-25 in capitulo; corollae albae peranguste infundibulares ca. 7 mm longae plerumque glabrae, lobis triangularibus ca. 0.6 mm longis et 0.5 mm latis extus minute glanduliferis; filamenta in parte superiore tenuia 0.8-0.9 mm longa; thecae ca. 1.8 mm longae; appendices antherarum oblongae ca. 0.20 mm longae et 0.18 mm latae; achaenia ca. 2 mm longa minute glandulifera; setae pappi 45-50 plerumque 5-6 mm longae apice tenues. Grana pollinis ca. 25 $\mu$  in diametro minute asperula.

Type: HONDURAS: Francisco Morazan: Cerro de Uyuca, in cloud forest, 1650-2000 m. March 10-20, 1951. C.V.Morton 7164 (Holotype US). Paratypes Honduras: Morazan: Drainage of the rio Yeguaré, at about Longitude 87° W. and Latitude 14° N. alt. 1600 m, Williams & Molina 12075 (F), Cerro de Uyuca, about 1600 m, March 2, 1947, Standley 4871 (F).

The species has been annotated in herbaria and listed in the treatment of the Compositae of Honduras (Clewley, 1975) as *Eupatorium williamsii* Standl. Nevertheless, we find no evidence that this name has ever been validly published. In describing the species we honor Paul Standley's apparent intent to name the species after his colleague at the Chicago Museum of Natural History, Louis O. Williams.

The species is in the group most widely represented by *B. platyphylla* (B.L.Robinson) K. & R. It is most closely related to *B. hastifera* (Standl. & Steyer.) K. & R. with which it shares the foliar disks on the nodes and the glanduliferous achenes, characters found in no other species of *Bartlettina*. The new species is most distinct from *B. hastifera* in the narrow but obvious wings of the petiole. In *B. hastifera* no such wing is present. The supra-basal trinervation of the leaf blade versus the basal trinervation in *B. hastifera* is a direct result of the presence of the wing. *Bartlettina williamsii* also seems to differ by generally coarser teeth on the leaf margin and by the less long-acuminate lateral angles of the leaf. At present *B. hastifera* is known only from the Departments of Alta Verapaz and Baja Verapaz in Guatemala while the new species is known only from north-central Honduras.

*Bartlettina macdougallii* R.M.King & H.Robinson,  
sp. nov. Plantae frutescentes 1-2 m alta? paucè ramosae. Caulis atro-virides vel rubrescentes teretes glabri. Folia opposita, petiolis brevibus 5-10 mm longis non alatis; laminae ovato-ellipticae 6-11 cm longis 3.0-4.5 cm latis base obtusae vel breviter acutae margine serratae apice breviter anguste acuminatae supra et subtus glabrae, nervis pinnatis. Inflorescentiae terminales late pyramidaliter paniculatae, ramis corymbosis, ramis ultimis 3-7 mm longis glabris. Capitula late turbinata 5-6 mm alta et 4 mm lata; squamae involucri subimbricatae ca. 25 valde inaequales ovatae vel late oblongae 1-5 mm longae et 0.7-1.2 mm latae margine anguste scariosae apice anguste vel late rotundatae extus leniter 2-4-costatae glabrae; receptacula glabra. Flores 30-40 in capitulo; corollae albae? anguste infundibulares ca. 4 mm longae plerumque glabrae in lobis dense puberulae et glanduliferae, lobis late triangularibus ca. 0.4 mm longis et 0.5 mm latis; filamenta in parte superiore 0.40-0.45 mm longa; thecae ca. 1 mm longae base breviter hastatae subdigitatae; appendices antherarum subquadratae ca. 0.2 mm longae et latae apice subtruncatae; appendices stylorum aliquantum lavandulae; achaenia ca. 1.5 mm longa apice

juxta pappum pauce setifera caetera glabra; setae pappi ca. 40 plerumque 3.5-3.7 mm longae apice non incrassatae. Grana pollinis ca. 23 $\mu$  in diametro minute asperula.

Type: MEXICO: Oaxaca: Ixtlan, Comaltepec, Vista Hermosa, 4,500+ ft. elev. Cloud forest. Shrub. Growing in partial shade. Jan. 30-31, 1971. T. MacDougall sn (Holotype NY, Isotype US).

Bartlettina macdougallii is the most obviously distinct of two species occurring in Oaxaca that are closely related to B. tuerckheimii (Klatt) K & R, the type species of the genus. The present species differs most obviously by the more broadly ovate-elliptical leaves with closer more projecting teeth and the less elongate apical acumination, by the broader and blunter outer involucre bracts, by the glabrous receptacle, and by the few setae on the upper part of the achene. The type species, B. tuerckheimii has more remote less prominent and narrowly mucronate-appendaged teeth and a caudate acumination on the leaves, lanceolate acute outer involucre bracts, a lobed and weakly to strongly hirsute receptacle, and completely glabrous achenes. Another possible distinction is the hastate subdigitate base on the anther thecae which differs from the samples that have been checked in B. tuerckheimii.

Bartlettina cronquistii R.M. King & H. Robinson, sp. nov. Plantae frutescentes ca. 2 m altae pauce ramosae. Caules virides vel fuscescentes teretes glabri. Folia opposita, petioli 10-25 mm longis non alatis; laminae membranaceae elliptico-lanceolatae 8-14 cm longae et 1.5-3.3 cm latae base cuneatae margine remote serrulatae in dentibus non mucrono-appendiculatae apice caudo-acuminatae supra et subtus glabrae, nervis pinnatis. Inflorescentiae terminales late pyramidaliter paniculatae, ramis corymbosis, ramis ultimis 4-10 mm longis glabris. Capitula turbinata 7-8 mm alta et ca. 3 mm lata; squamae involucri subimbricatae ca. 22 valde inaequales 1.5-6.0 mm longae 0.5-1.0 mm latae margine anguste scariosae apice obtusae vel breviter acutae extus leniter 2-4-costatae glabrae; receptacula glabra. Flores 20 in capitulo; corollae albae anguste infundibulares 4.5-5.0 mm longae plerumque glabrae in lobis dense puberulae et glanduliferae, lobis late triangularibus ca. 0.3 mm longis et 0.5 mm latis; filamenta in parte superiore 0.25-0.30 mm longa; thecae ca. 1.5 mm longae base subcordatae non digitatae; appendices antherarum ovatae ca. 0.2 mm longae et 0.17 mm latae

apice obtusae; appendices stylorum albae; achaenia 2.3-2.5 mm longa superne plerumque in costis setifera; setae pappi ca. 30-37 plerumque 4.0-4.5 mm longae apice non incrassatae. Grana pollinis ca. 23 $\mu$  in diametro minute asperula.

Type: MEXICO: Oaxaca: In mixed pine and deciduous subtropical forest, on the Pacific slope of the Sierra Madre del Sur, not far below the summit, in granitic region, 49 miles north of Puerto Escondido. Elevation about 6,100 ft. Erect shrub about 2 m. tall. Flowers white. Leaves glossy. November 8, 1965. Arthur Cronquist and Mario Sousa 10514 (Holotype US).

The new species is closely related to B. tuerckheimii and has a similar caudate-acuminate leaf. The differences are too numerous, however, to regard the two as conspecific. Both B. cronquistii and the preceding species, B. maddougallii, differ from B. tuerckheimii by the lack of mucronate extensions on the teeth of the leaf, by the unlobed glabrous ridges of the receptacle, and by the setiferous achenes. The present species differs further by the fewer flowers per head, by the completely white flowers, and by the more ovate anther appendage. Differences from B. maddougallii include leaf shape, shape of the involucreal bracts, flower number, bases of the anther thecae, shape of the anther appendage, and the greater number of setae on the achene. The larger size of the flower parts seems significant also though only one collection of each species is available for comparison.

Both B. cronquistii and B. maddougallii are from the state of Oaxaca separated from the known range of B. tuerckheimii by the isthmus of Tehuantepec. The latter species ranges from Chiapas through Guatemala to Honduras.

Bartlettina chiriquensis R.M.King & H.Robinson, sp. nov. Plantae frutescentes multo ramosae, ramis declinatis 3 m longis. Caules tenues fuscescentes subhexagonales minute puberuli. Folia opposita, petiolis 10-20 mm longis non alatis; laminae lanceolatae 4.0-7.5 cm longae et 1.2-1.7 cm latae base anguste cuneatae margine subremote in dentibus breviter mucronato-appendiculatae apice anguste argute acuminatae supra et subtus sparse minute puberulae, nervis pinatis, nervis secundariis paucis utrinque 3 sensim ascendentibus. Inflorescentiae diffusae in ramis terminales paucicapitatae; ramis ultimis 7-15 mm longis minute puberulis. Capitula late turbinata ca. 8 mm

longa et 6-7 mm lata; squamae involucri subimbricatae ca. 40 valde inaequales oblongae vel late oblongae 1.5-6.0 mm longae et plerumque 1.0-1.5 mm latae margine anguste subscariosae fimbriatae apice plerumque obtusae vel rotundatae dense fimbriatae extus 4-costatae, bractae interiores in parte distincta terminali dense tomentosae; receptacula non lobata sparse hirsuta. Flores 20-25 in capitulo; corollae pallide lavandulae infundibulares 4.5 mm longae in tubis et faucis plerumque glabrae, lobis late triangularibus ca. 0.5 mm longis et 0.6-0.7 mm latis extus sparse hirsutis, pilis et cellulis pilorum elongatis; filamenta in parte superiore ca. 0.4 mm longa; thecae 1.3 mm longae base subcordatae non digitatae; appendices antherarum oblongo-ovatae ca. 0.3 mm longae et 0.2 mm latae apice rotundatae. Achaenia ca. 2.3 mm longa glabra; setae pappi ca. 30 plerumque 4.5-5.0 mm longae apice distincte latiores et validius scabrae. Grana pollinis ca. 23 $\mu$  in diametro minute asperula.

Type: PANAMA: Chiriqui: Cerro Horqueta. Cool humid Cord. de Talamanca above Boquete (8° 49'N, 82° 29' W). Low cloud forest. January 2, 1975. Cochrane Cochrane & Kowal 6288 (Holotype WIS, Isotype US).

Bartlettina chiriquensis has some resemblance to B. tuerckheimii because of the lanceolate leaves but differs by numerous characters that suggest a more remote relationship. The species differs from all others in Central America by the diffuse inflorescence with few heads at the ends of leafy branches. The slender declining more branching habit is also rather distinctive. The species is also further distinguished from B. tuerckheimii in particular by the less caudate-acuminate minutely puberulous leaf with fewer more ascending secondary veins, by the broader blunter involucre bracts with more distinctly tomentose tips, by the lack of lobes on the ridges on the receptacle, by the lack of glands on the corolla lobes, and by the more ovate anther appendages. In the immature achenes the ribs do not seem as continuous with the carpodium at the base which might indicate a closer relationship to B. pinabetensis (B.L. Robinson) K & R of Guatemala and Chiapas, Mexico. The latter can be distinguished readily by the broadly corymbose inflorescence as well as the glabrous involucre, the fewer flowered heads, the glabrous corolla lobes and the slender tips of the pappus setae.

Two Central American species have been collected that are partially to grossly immature, E. montigenum



from Guatemala and E. silvicola from Costa Rica. In addition to their immaturity the specimens of both species share densely hirtellous stems and leaves, rather elongate petioles, about 8-10 flowers per head and glanduliferous achenes. The longer petioles suggest relation to Bartlettina. The flower number in the two species is lower than generally found in the Hebeclinium group but it is seen in B. pinabetensis. Glanduliferous achenes are also rare in Bartlettina but are seen in B. hastifera and B. williamsii. The two species seem best placed in Bartlettina though they apparently represent a distinctive element in that genus.

Bartlettina montigena (Standl. & Steyerl.) R.M. King & H. Robinson, comb. nov. Eupatorium montigenum Standl. & Steyerl., Field Mus. Bot. 23:258. 1947.

Bartlettina silvicola (B.L. Robinson) R.M. King & H. Robinson, comb. nov. Eupatorium silvicola B.L. Robinson, Proc. Amer. Acad. 31:254. 1904.

Type material of the previously unrecognized Jaumea tenuifolia Klatt of Mexico has been borrowed through the kindness of the Botanical Museum of Copenhagen. The name should be placed in synonymy as follows:

Bartlettina karwinskiana (DC) R.M. King & H. Robinson  
Jaumea tenuifolia Klatt, Leopoldina 23(9-10):  
 146. 1887. Liebmann 202 (Holotype & Isotype C)  
Neurolaena tenuifolia Schultz-Bip. ex Klatt,  
 Leopoldina 23(9-10):146. 1887. nom. nud.

#### Reference

Clewell, A. F. 1975. Las Compuestas de Honduras.  
 Ceiba 19(2):117-244.

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Bartlettina williamsii R.M.King & H.Robinson,  
 Holotype, United States National Herbarium. Photo by  
 Victor E. Krantz, Staff Photographer, National Museum  
 of Natural History.



Bartlettina macdougallii R. M. King & H. Robinson,  
Holotype, New York Botanical Garden.





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HERBARIUM OF  
THE NEW YORK BOTANICAL GARDEN  
Plants of MEXICO

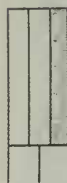
*Eupatorium tuerkheimii* Klatt

CAJALÁ: In mixed pine and deciduous subtropical forest, on the Pacific slope of the Sierra Madre del Sur, not far below the summit, in granitic region, 159 miles north of Puerto Escondido. Elevation about 6100 feet.

Erect shrub about 2 m. tall. Flowers white. Leaves glossy.

Arthur Cronquist and  
Mario Sousa 10<sup>th</sup> November 8, 1961

*Bartlettina cronquistii* R.M.King & H.Robinson,  
Holotype, United States National Herbarium.



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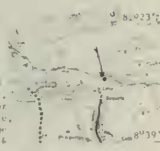
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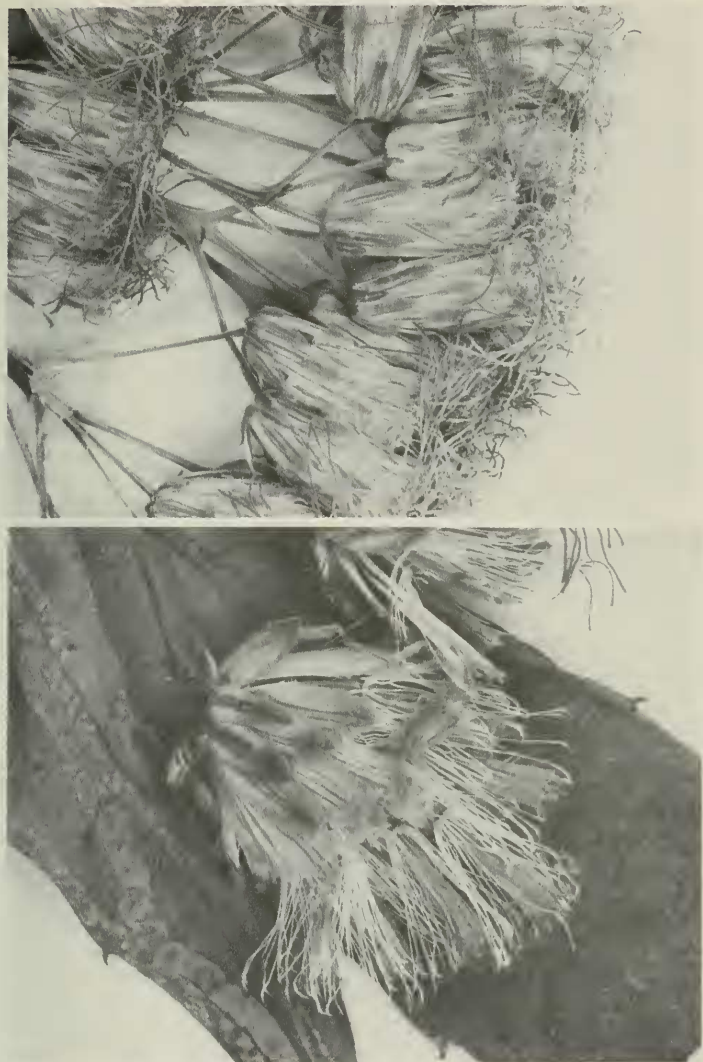
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Lower montane rain forest in wetting slopes of steep flank of Cerro Boquete along high trail to summit at 1,750-2,100 m. S. S. Chiriquí, S. A. Boquete, 6 R. K. King January 14, 1975

Bartlettina chiriquensis R.M.King & H.Robinson, Holotype, University of Wisconsin.



Enlargements of heads. Top, Bartlettina williamsii.  
Bottom, B. macdougallii.



Enlargements of heads. Top, Bartlettina cronquistii.  
Bottom, B. chiriensis.